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Chronos in Aristotle's Physics: On the Nature of Time. By Chelsea C. Harry. Heidelberg: Springer, 2015. Pp. 75. \$69.99 (paperback). ISBN 978-3319178332.

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Chelsea Harry proposes a new, contextual reading of Aristotle's views on time in the *Physics*. According to her reading, such views cannot be correctly understood in isolation from the whole project Aristotle is developing in this work, but must rather be put in context with Aristotle's general analyses of nature, motion, infinite, place and void. From this standpoint, the title of her book has a precise meaning and represents a specific intent: to understand time within the framework of Aristotle's philosophy of nature, whose central feature is motion, and therefore to understand time as something that somehow exists (only) in relation to motion.

For this purpose, she begins by 'putting time in context' (chapter 1), that is to say, by presenting Aristotle's general project in the *Physics* and summarizing his views on nature, motion, infinite, place, and void. Then she presents and discusses what she calls 'Aristotle's analytic of time' in *Physics* iv 10-11 (chapter 2). Finally, she puts forward her own interpretation of Aristotle's account of time in a more systematic fashion (chapter 3) and concludes with an outline of the main results of the research.

I shall begin by pointing out what I take to be the strong points of the analysis developed throughout the book. The first strong point is the importance Harry attaches, rightly, in my opinion, to the context in which philosophical concepts, problems, theories and arguments are put forward, and not to those problems, theories, and arguments abstractly considered and taken in isolation from the context.

Secondly, there is in her approach to philosophical problems what I am tempted to call an inclination towards a ‘conjunctural’ attitude, as it were, as opposed to a ‘disjunctural’ one, an attitude that must be highlighted and applauded. What I mean to say is that, when facing what seems to be a dilemma, she is always more prone to accept a solution that includes both sides of it, rather than one that excludes one of them. She is, if I may, more of a ‘both P and Q’ than an ‘either P or Q’ kind of philosopher. I take this as a very Aristotelian trait of philosophical character.

Besides these two points, there are of course many other interesting and innovative perspectives put forward in this book. I find especially enlightening the distinction Harry proposes in the final chapter (62-67) between perceiving time in small-scale changes, as nonhuman animals and small children do, and counting or measuring time, which is specific to human apprehension of time.

There are however some central features in her interpretation that warrant strong reservations. Here is the first one. One important point in Harry’s interpretation is that Aristotle is not talking about our contemporary, abstract conception of time—as the infinite succession of moments—but of ‘time taken’, that is to say, the time that is concretely taken by a natural being to change from A to B (whether this change be alteration, locomotion or whatever change it may be), or, better still, on her account, the time that is taken by the soul to count the change that occurred from A to B.

Her chief argument for attributing this distinction to Aristotle (in fact, her only argument) is the introductory text of the *Treatise on Time*, where the philosopher says the following (this is *Phys.* iv 10.217b29-218a3, in the revised Oxford translation):

Next for discussion after the subjects mentioned is time. The best plan will be to begin by working out the difficulties connected with it, making use of the current arguments. First, does it belong to the class of things that exist or to that of things that do not exist? Then secondly, what is its nature? To start, then: the following considerations would make one suspect that it either does not exist at all or barely, and in the obscure way. One part of it has been and is not, while the other is going to be and is not yet. Yet time—*both infinite time and any time you like to take*—is made up of these. One would naturally suppose that what is made up of things which do not exist could have no share in reality.

Generally, Harry takes this text, and specifically the words in line 218a1—‘both infinite time and any time you like to take’ (καὶ ὁ ἄπειρος καὶ ὁ ἀεὶ λαμβανόμενος)—as if Aristotle was introducing in it a theoretical distinction between two different conceptions of time. I sincerely wonder whether this line of interpretation is faithful to the text.

First of all, Aristotle’s wording here seems to be a *hapax*. Now, if ὁ ἀεὶ λαμβανόμενος is indeed a *hapax*, it is hardly acceptable to use it as indicating a

significant way of understanding time. Let us look at the text itself. Instead of ‘time taken’, which of course suggests the time that someone *takes* to do something or the time that is *taken* to count the process of doing it, and which therefore automatically supports Harry’s interpretation, would it not be more natural to read ὁ αἰὲς λαμβανόμενος χρόνος as ‘any time you want to take *into consideration*’? Something like ‘pick a card, any card’: pick a time interval, whichever you want? Now, if this is indeed the more natural reading of the clause, as it seems, then Aristotle is not saying that time is two things or has two different senses, infinite time and ‘time taken’, in Harry’s words, but just that, when considering time, we may regard it in its fullness—the infinite succession of time—or rather pick a specific moment in time.

Further, this passage seems to me much simpler than what Harry sees in it. What Aristotle is saying here is just that whether you consider time in general, as a continuous succession, or any concrete piece of time you like, it will always appear to you as being composed of what-has-been and what-is-going-to-be, of past and future. He is therefore appealing to common sense, everyday notions of time, which fully agrees with the *endoxical* section of the treatise he is initiating. Of course, this does not commit him in the least to the idea that time is really a whole whose parts are the past and the future. The argument works, on the contrary, as an *ad hoc* argument (in fact, a *reductio ad absurdum*) against all those who *do* consider time to be so, that this to say, all those, philosophers and non-philosophers alike, who share this naive view of time.

I now move on to my second main objection, viz., to what I feel is Harry’s idealistic conception of time. This is, from the very beginning, fundamental to the entire book:

To the extent that time is derived from nature, it is not a self-subsistent being *qua* itself. Instead, it is always only a potential being...unless it is apprehended by one or more faculties of cognition, e.g., perception, *phantasia*, intellection. ...In sum, time for Aristotle is never an *a priori* or fixed presence; it is not a container, a continuum, or a copy of eternity. What we know of time—indeed, what we make of it, is the same thing as what time actually is. (xviii)

If I understand this properly, Harry is putting forward two theses: one, that time, for Aristotle, ‘is not a self-subsistent being *qua* itself’; and, two, that time only actually exists when ‘apprehended by one or more faculties of cognition’ (or even, as she suggests by the end of this text, and in fact argues later on in the book, that time depends on the soul for its actual existence).

Now, Thesis One and Thesis Two are not necessarily related to each other and imply very different things. Someone can agree that time for Aristotle ‘is not a self-subsistent being *qua* itself’ and *not* accept that it depends on the soul (or on any faculty of cognition) for its actualization, and therefore for its existence as an actual being.

Thesis One is not committed to any idealistic conception of time and admits a

number of interpretations and explanations within Aristotelian physics that do not commit Aristotle as well to any such conception. I have no objection to this thesis, which I am glad to subscribe to. Indeed, for Aristotle time 'is not a self-subsistent being *qua* itself'.

Thesis Two, on the contrary, constitutes the very essence of such an idealistic conception of time. This thesis I cannot accept and, in fact, I find no good reason why it should be accepted in order to justify Thesis One.

Throughout her book, Harry puts forward several arguments aimed at proving the opposite, that is to say, that we should accept Thesis Two, and that we should do so also partly because Thesis Two is indispensable to understand why Aristotle would support Thesis One.

The first argument is that time is a number, namely, the 'number of motion in respect of before and after' (*Phys.* iv 11.219b1), and, as Aristotle himself explicitly points out, a number in the sense of 'what is counted or countable' and not in the sense of 'that with which we count' (219b8-9; cf. 220b8-12). Harry does not elaborate much on this issue, but, when summarizing Aristotle's treatise on the infinite, she makes the following remark:

Note here that Aristotle states without argument that number is not a substance. This is one of the clear indications that he does not think about number as a self-subsistent being *qua* itself. This is a clue as to how to understand Aristotle's definition of time, which classifies time as a number. (24n43)

Despite its brevity, the remark is indicative of the importance she attaches to the definition of time as a (kind of) number as a vital element for her 'disobjectivation' of time, so to speak.

However, to declare that number is not a substance—as Aristotle certainly says here, as he often does, above all in *Metaphysics* xiii-xiv, where he considers mathematical entities, or 'abstract objects' if you like, from a purely ontological point of view, and therefore as the kind of things they are—means only, from an Aristotelian standpoint, that a number is but *an attribute* of substances, separated from which it has no real existence. It does *not* mean, nor imply, that numbers depend on the soul to exist. Aristotle's ontology of numbers and mathematical entities falls short therefore of what is required for such a 'disobjectivation' to be achieved successively.

But maybe there is another line of reasoning implicit here: if time is a number, and not only a number, but a number in the sense of 'what is counted', then surely it can only exist in actuality if there is something or someone *that counts it*. Time therefore, as the 'number of motion in respect of before and after', demands some kind of subjective instance in order for it to actually exist (in fact Harry makes this point explicit later on, see especially 59-60).

If this is so, then the reasoning is, I am afraid, highly debatable. Consider the building you are currently in. Certainly you will agree that this building is several feet high and that no matter what its exact height is *that* height can be expressed by number(s). Well, the building's height would no doubt correspond to that

exact number regardless of the fact that there is someone in the world capable of counting it. However, such a number is, in Aristotle's terms, a number in the sense of 'what is counted or countable' and not in the sense 'of that with which we count', that is to say, it is a real measurable quantity and not a purely abstract arithmetical value.

Similarly then, as long as there is motion in the world and that motion is independent from any subject that observes it, time would exist for Aristotle as the 'number of motion in respect of before and after', even if no soul was there to count such a number.

When Aristotle says that 'time is what is counted, not that with which we count' (11.219b7-8), what he means is not that time only exists if actually counted, but that time (any individual time you consider, that is) is a real countable quantity, not the abstract concept we use for the purpose of counting and measuring these quantities. For Aristotle, number can be understood in two ways, either as the abstract arithmetical value 'with which we count' or the real quantities 'which are counted'; and time—he wants to make it crystal clear here—must be conceived of as a number in the latter sense, that is, as a real quantity. Far from supporting an idealistic approach to time, Aristotle's definition of time as a number in the sense of 'what is counted' involves therefore a strong implicit realistic claim.

So much for the argument founded on the definition of time as number. However, Harry also finds support for her interpretation in the famous passage of *Physics* iv 11 where Aristotle introduces this definition:

When, therefore, we perceive the 'now' as one, and neither as before and after in a motion nor as the same element but in relation to a 'before' and an 'after', no time is thought to have elapsed, because there has been no motion either. On the other hand, when we do perceive a 'before' and an 'after', then we say that there is time. For time is just this—number of motion in respect of 'before' and 'after'. (219a30-b2)

According to Harry's interpretation of this passage, 'Aristotle makes the stronger claim that the actual perception and subsequent apprehension of the before and after *contributes necessarily to the being of time*' (44, my emphasis).

However, if we look again carefully at the text, what Aristotle says there is that when there is no perceptible motion, that is to say, when one is not aware of there being motion, 'no time *is thought* to have elapsed'. He does not say that no time *has* elapsed. Awareness of motion contributes necessarily to the *awareness* of time, not to 'the *being* of time'. Further, what he says in the critical passage is that 'when we do perceive a "before" and an "after", then *we say* that there is time'. He does not say that when we perceive a before and an after, then *there is* time. Again, perception of before and after is indispensable for being aware that time is passing, not for the very existence of time. His point here is that it is only when we perceive before and after that *we perceive* that time exists, not that it is only when we perceive before and after that time itself *exists*. Clearly, therefore,

the very wording of the text precludes the meaning Harry is trying to extract from it.

A number of other texts in Aristotle's *Treatise on Time* confirm this and shows how cautious Aristotle always is in writing down precisely what he means in this regard. In *Physics* iv 11.218b21-29, we read the following (my emphasis):

But neither does time exist without change; for when the state of our minds does not change at all, or we have not noticed its changing, *we do not think* that time has elapsed... So, just as, if the 'now' were not different but one and the same, there would not have been time, so too when its difference escapes our notice the interval *does not seem* to be time.

And in *Physics* iv 11.219a22-25 (my emphasis): 'But we *apprehend* time only when we have marked motion, marking it by before and after; and it is only when we have perceived before and after in motion *that we say* that time has elapsed.' From this point of view, it becomes somewhat unclear, in my opinion, why we should conclude, as Harry does, that 'this time that we proclaim when we have apprehended it *is indeed all that time is* if we are talking about the time taken' (45, my emphasis). It is indeed all that time is *for us*, as beings who are able to notice the passing away of time. But it is by no means all that time is *in itself*, namely, as the number of the motion that is actually going on, 'in respect of before and after'.

Finally, there is another text from the *Treatise* that is used extensively in the book on behalf of the idealistic interpretation of Aristotle's doctrine of time. This, unsurprisingly enough, is the text of *Physics* iv where Aristotle discusses 'how time can be related to the soul' (to use his own words) and suggests that it might be inconsistent to consider that time is a number in the sense of 'what is counted' and to conceive of it as independent of the soul, since (to quote him again) 'nothing but soul, or in soul *nous*, is qualified to count'. Let us have a look directly at the text (*Phys.* iv 14.223a16-29):

It is also worth considering how time can be related to the soul ... Whether if soul did not exist time would exist or not, is a question that may fairly be asked; for if there cannot be some one to count there cannot be anything that can be counted either, so that evidently there cannot be number; for number is either what has been, or what can be, counted. But if nothing but soul, or in soul reason, is qualified to count, it is impossible for there to be time unless there is soul, but only that of which time is an attribute, i.e. if movement can exist without soul. The before and after are attributes of movement, and time is these *qua* countable.

Harry reads this text as if it *affirmed* that time actually depends on the soul. This is apparent throughout chapter 3.2, where this idea is repeatedly stated under several formulations. But *does the text affirm this*? Actually, it might be fair to say that the text affirms surprisingly little, if anything. In fact, *Physics* iv 14 is a text

of an unmistakable aporetic (hence dialectical) nature. The problem of whether the existence of time depends or not on the existence of the soul is presented as 'a question that may fairly be asked' and the line of thought leading to the conclusion that 'it is impossible for there to be time unless there is soul' is just proposed as one way of replying to that question that shows how fair it is to actually ask it. In fact, if there is a risk that time does not exist 'unless there is soul', the question on the relation between time and soul definitively deserves to be asked. Accordingly, it is difficult to decide whether this line of thought corresponds to the author's own position or somebody else's and, if the latter, whether he is putting it forward because it presents a difficulty to be solved eventually by further research or as something to be rejected altogether.

Clearly, the argument rests on three premises: (1) 'number is either what has been, or what can be, counted'; (2) 'nothing but soul, or in soul reason, is qualified to count'; and (3) 'if there cannot be some one to count there cannot be anything that can be counted either'.

Premise 1 is unmistakably Aristotelian and is one of the fundamental principles of the *Treatise on Time*. Premise 2 seems hardly disputable. What about premise 3 then? I think there are good reasons to consider it *not* to be acceptable on good Aristotelian grounds. Number, for Aristotle, is a property of sensible substances, separable only by abstraction (*Meta.* xiii 1-3), and something that is inherent to bodies (*Meta.* xiv 3). As such, it seems inconsistent to think of it as dependent on the soul or on no matter except the sensible substance in which it inheres.

When stating premise 3 therefore, Aristotle is probably not advancing a principle of his own, but rather an *endoxon*, from which the *unwanted* conclusion that time presupposes the existence of the soul follows, an *endoxon* that should therefore be *rejected and refuted*. As an *endoxon*, it has of course plausibility on its side. It seems in fact hard to accept that something can be countable without there being someone able to count it. But we have seen this already: recall my previous example of the building's height. For something to be countable only means that, as long as there is someone able to count, it can be counted. It by no means implies that what is countable can only *exist* if there is someone to count it. What it implies is that it can only be counted under that condition. Hence, the conclusion, quite literally, is that something *can* be countable without there being someone able to count it.

Despite the previous remarks, this book offers refreshing and challenging views on the concept of time in Aristotle that will certainly stimulate further debate. It certainly deserves to be read by all those who are interested in this important and always stimulating, complex and controversial topic in Aristotelian philosophy.

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